

THE ATMOSPHERIC CHEMISTRY EXPERIMENT (ACE): CO, CH₄ AND N₂O ISOTOPOLOGUES

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ACE (also known as SCISAT) is making a comprehensive set of simultaneous measurements of numerous trace gases, thin clouds, aerosols and temperature by solar occultation from a satellite in low earth orbit. A high inclination orbit gives ACE coverage of tropical, mid-latitudes and polar regions. The primary instrument is a high-resolution (0.02 cm^{-1}) infrared Fourier Transform Spectrometer (FTS) operating in the $750\text{--}4400\text{ cm}^{-1}$ region, which provides the vertical distribution of trace gases, and the meteorological variables of temperature and pressure. Aerosols and clouds are being monitored through the extinction of solar radiation using two filtered imagers as well as by their infrared spectra. Although now in its thirteenth year, the ACE-FTS is still operating nominally. A short introduction and overview of the ACE mission will be presented (see <http://www.ace.uwaterloo.ca> for more information). This talk will focus on ACE observations of the CO, CH₄ and N₂O isotopologues, and comparisons with chemical transport models.